

LA-UR-19-21657

Approved for public release; distribution is unlimited.

Title: ALDW Explosives Safety Program

Author(s): Cerreta, Ellen Kathleen
Lake, Michael Anthony
Montoya, Derrick Ronald

Intended for: OIG Audit

Issued: 2019-02-26

Disclaimer:

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by Triad National Security, LLC for the National Nuclear Security Administration of U.S. Department of Energy under contract 89233218CNA000001. By approving this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

ALDW Explosives Safety Program

ALDW Program Manager: Ellen Cerreta

Institutional Program Owner: Mike Lake

LANL Management Champion: Derrick Montoya

February 4, 2019

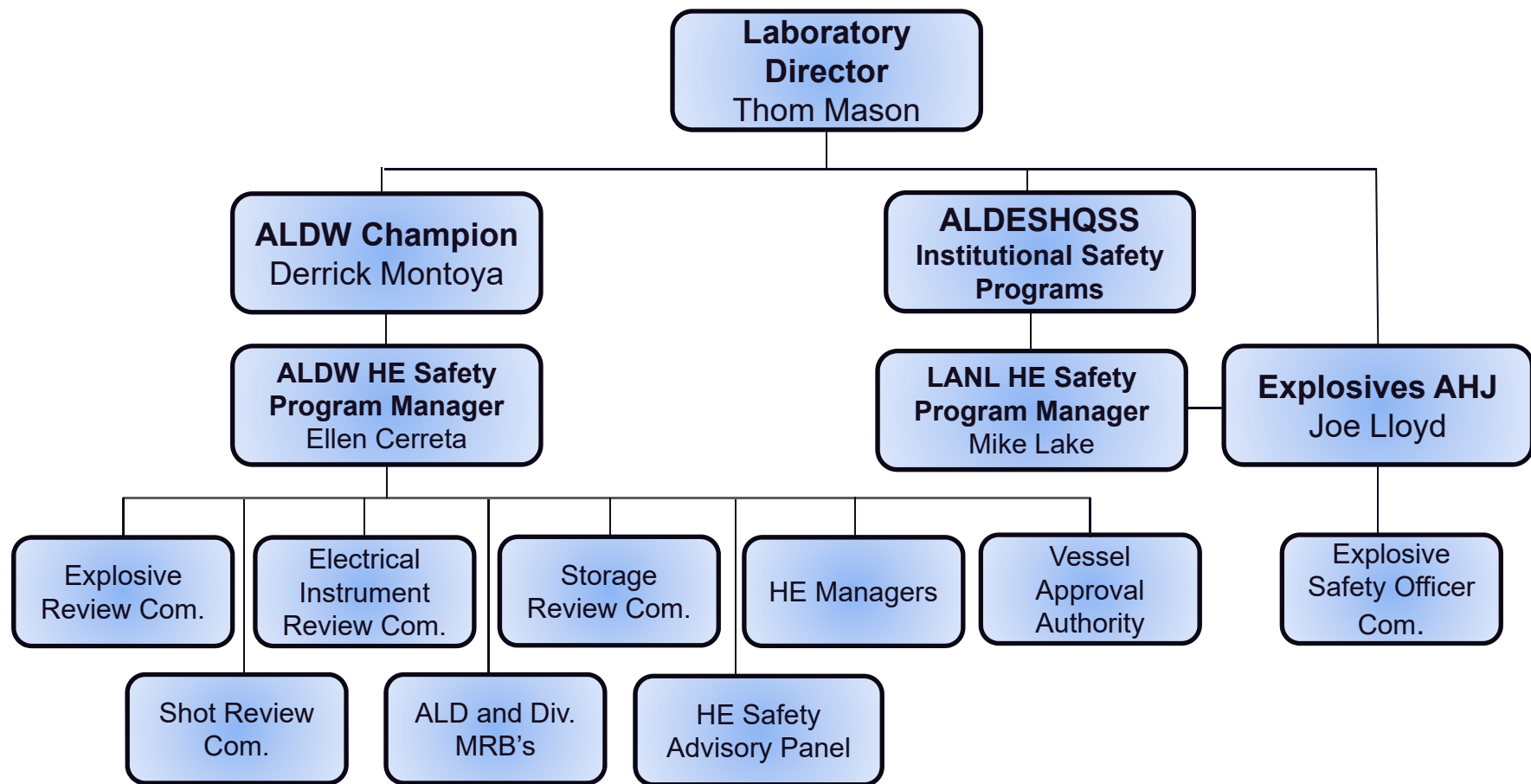


LOS ALAMOS
EXPLOSIVES SAFETY



Operated by Triad National Security, LLC for the U.S. Department of Energy's NNSA

LANL's HE Safety Program is Structured to have a strong partnership between Programmatic and Institutional Operations



ALDW Champions the Explosives Safety Program for LANL

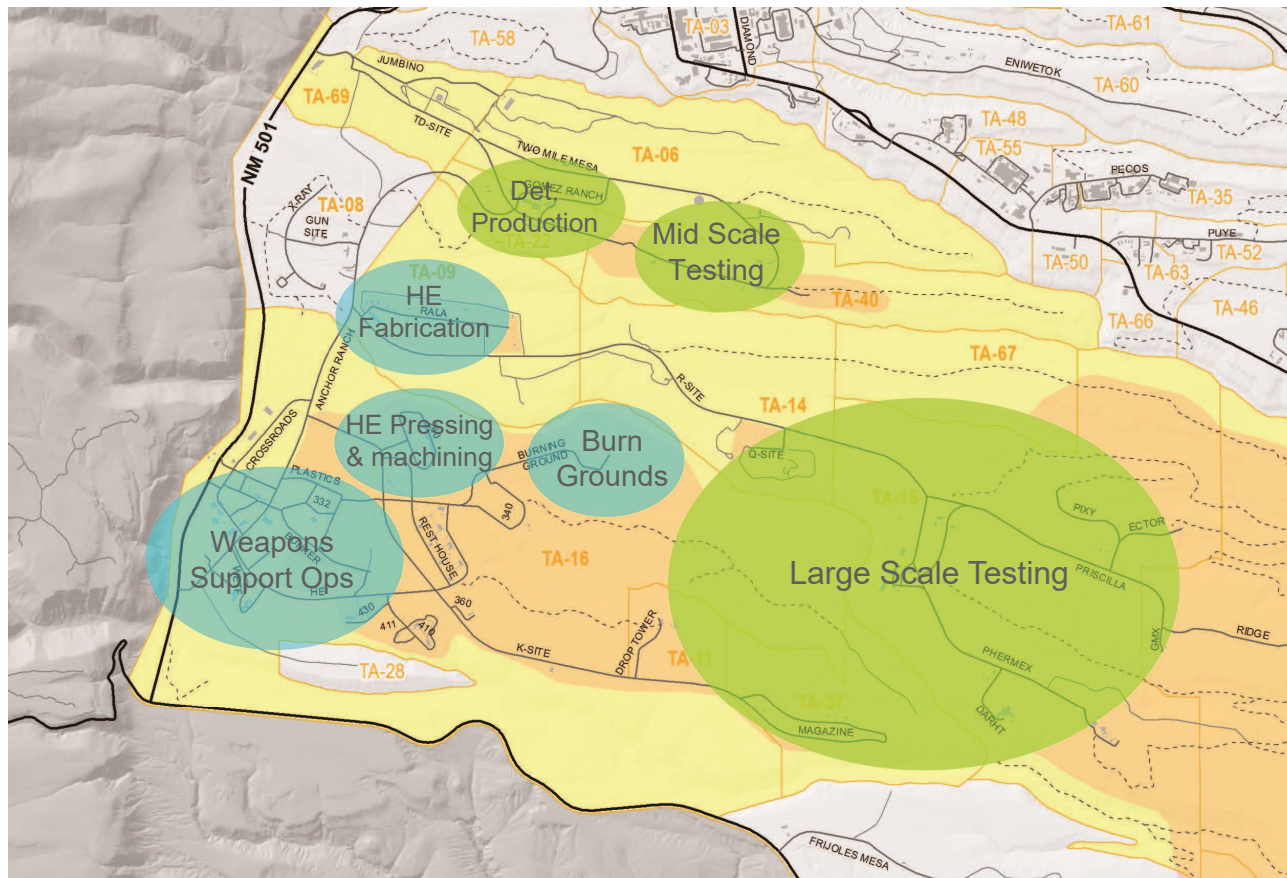
- **The LANL Explosives Safety Program provides oversight of safety standards & controls from the DOE Explosives Safety Technical Standard and LANL Explosives Safety Policy.**
 - The ALDW program works in partnership across program organizations performing explosives operations, the relevant FODs, and ALDESHQSS to communicate, interpret and verify compliance with these requirements.
 - ALDW is the management champion for LANL's Explosives Safety Program.
- **The ALDW Explosives Safety Program helps minimize the probability of an incident.**
 - Focus: updating operations using outdated, inapplicable, or incomplete procedures.
 - Enables: readiness for new explosive operations.
 - Provides: adequate training for workers.
- **ALDW GOALS**
 1. Enable LANL staff to document and implement compliant safety procedures.
 2. Train workers in best practices for explosives work.
 3. Provide a forum to discuss & elevate safety-related issues.

The LANL Safety Program implements DOE-STD-1212 and P101-8 to enable safe and compliant Design and Production Agency Mission.

The HE Campus at LANL Covers More than 20 Square Miles

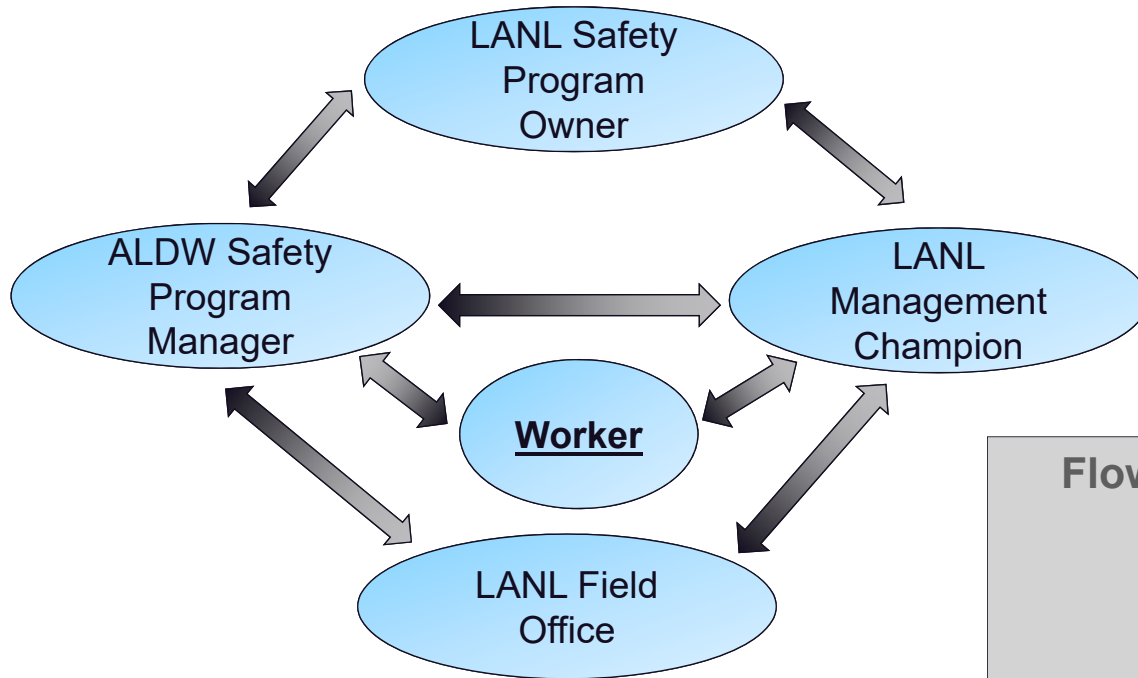
The high-explosives campus at LANL is sizable and aging

- 525,000 square feet, 247 buildings, and 14+ TA's



A Partnership between ALDW and LANL HE Safety Programs as well as the Site Office Ensures Communication of DOE Policy to the Worker

Communication For Flow Down of Requirements



Flow Down of Policy into ALDW Work

DOE Standard 1212



LANL Policy 101-8



Hazard Analyses



Integrated Work Documents

Process for Managing Requirements Enables Work Control at the Activity Level

Initially, requirements are communicated to the worker through:

- Training – tailored to worker specific needs
- Technical Procedures and Integrated Work Documents - built on hazards analyses that establish compliant controls to mitigate hazards

Interpretation of requirements/changes to requirements are communicated to the worker through:

- Flow down of information provided at the HE Managers meetings
- Worker interaction with group level Explosives Safety Officer (EXSO)
- Lessons learned

Reminders for HE workers and Education for the Non-HE worker communicated through:

- Signage and Postings
- Access Control Office Briefings
- Plan of the Week meetings
- Annual reviews of safety documents
- Assessments (internal and external)
- Management Observations
- Safety Days

Four Primary Elements of the ALDW Safety Program Ensures Connectivity of Policy, Interpretation, & Implementation, leading to Compliance and Continuous Improvement

Goal: Document and Implement Compliant Safety Procedures into our Work

Training

- Development of new training and qualification standards
- Maintenance of the current training
- Responsibility for Archiving procedures
- Training Equivalency Decisions

Communication

- Organize and host the bi-monthly HE managers meeting
- Maintain program website
- Partnership with the Institutional HE Safety Office
- Hold the LANL HE Safety Day
- Lead bi-weekly meetings with deployed training staff to set priorities
- Bi-weekly meetings with FOD & ACO

Assessment

- Lead internal assessment and surveillance teams
- Conduct Monthly HE MOV's with AHJ and Site Office
- Participate/lead in resumption activities
- Oversee response to findings from internal & external assessments

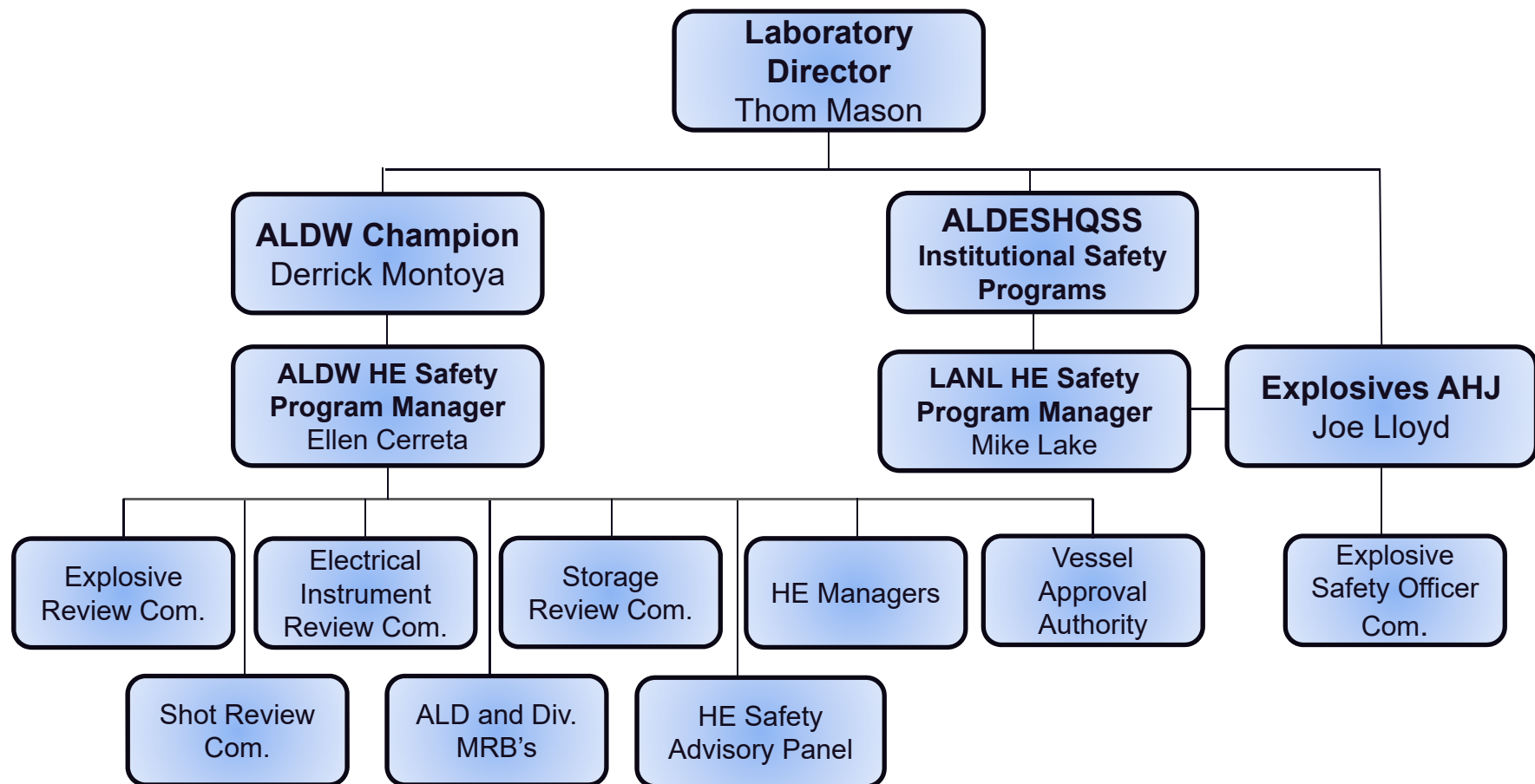
Committee Resources

- HE Managers
- Shot Review Committee (SRC)
- Explosives Review Committee (ERC)
- Explosives Instrument Review Committee (EIRC)
- Vessel Approving Authority (VAA) **
- HE Safety Advisory Panel
- Explosives Safety Officer Committee
- Explosives Storage Review Committee
- ALDW & FOD MRBs**

* In development

** Not exclusive to the HE safety program

These Resources have a Reporting Structure that Underpins their Authority



2019 HE Safety Program Initiatives

- 1. Advanced Hazard Analysis – Updates to our program**
- 2. Enhanced Firing Site Leader Support:**
 - Complete On-the-Job-Training (OJT) Manual aligned with Current Firing Site Hazard Analysis for LANL Firing Site Leaders
 - New Nevada Test Site Firing Site Leader Qualification Program Developed
 - On-going enrichment of FSL'S – Lessons Learned
- 3. Fundamentals Courses**
 - Texas A&M continuing education program
- 4. P101-8 Revision**
 - Hand in hand with the Revision of DOE 1212

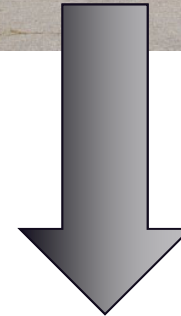
Recent Program Accomplishments (Last 6 months)

- 1. Held 2018 HE Safety Day for all HE workers at LANL**
 - Discussed lessons learned, introduced new laboratory wide resources, historical perspectives offered
- 2. Implementation of Lessons from 2018 Stage Three Fire Restrictions**
 - Addressed indoor equivalency and have transitioned to outdoor equivalent
 - PD 1220: Wildland fire policy implementation
- 3. First two FSL boards in two years have been held and successfully qualified two new FSLs**
- 4. ALDW HE Safety Program Web Page went Live**
- 5. HA improvement workshop held in November – findings out briefed to HE Managers**
 - Implementation plan for findings in development
- 6. Completed the AHJ's 2018 HE Management Observation and Verification (MOV) Schedule with the LANL Site Office & AHJ**
 - Developing the 2019 Schedule

Modernization is a Long Term Investment Plan: Significant Investment in Last 5 Years

Recent Accomplishments:

- Single Crystal Growth Lab is Moving and being updated
- Chamber 15 upgrades almost done (TA-40-15)
- HE machining facility upgrades are on-going (TA-16-260)
- Electrical upgrades at our firing sites: Eenie, K-site, TA-39 pt. 6, etc.
- Robust maintenance plan: Roof repair, road repaving, erosion & fire mitigation, HVAC
- Occupancy of the DEOS facility at TA-40



We are looking to our next advanced characterization facility: EMCF

The Multi-Partner Program Has Numerous Activities in Progress to Enable Readiness for Explosives Work

Continuous communication between Safety Program, Worker, the FOD, and the Site Office

- New Activity/Current Activity Reviews
- Committee resources enable communication and growth of a mature HE Safety Program
 - Determinations/Documentation
 - Training
 - Assessments
 - Lessons Learned

HE Inventory: Training and Assessments

Training:

- P101-8- cover requirements for storage, labeling, custodian duties, etc.
- HE Handler Qualification requires knowledge of:
 - Storage
 - Inventory and limits
 - Labeling

Assessments:

- Per DOE 1212 a yearly inventory is performed by all HE custodians
- Each HE Manager has prescribed MOVs for Storage, Magazines Maintenance, Empty Boxes, etc. annually
- Management Assessments: Annual assessments in the recent past have devolved into HE storage & inventory to examine worker needs and opportunities for improvement